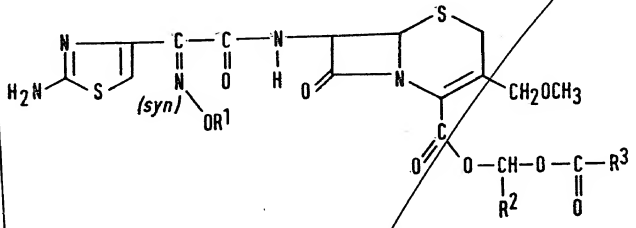
CLAIMS:

1. Compounds of formula (I):




(I)

wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

$R^3$ represents a group selected from ~~$C_1$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups;

and pharmaceutically acceptable acid addition salts thereof.

2. The compounds claimed in Claim 1, wherein $R^1$ represents a methyl group.

3. The compounds claimed in Claim 1, wherein $R^2$ represents a hydrogen atom ~~and $R^3$ represents a $C_1$-$C_5$ alkyl group~~.

4. The compounds claimed in Claim 1, wherein $R^2$ represents a methyl group ~~and $R^3$ represents a $C_1$-$C_5$ alkoxy group~~.

5. The compounds claimed in Claim 1, selected from the group consisting of:

Pivaloyloxymethyl 7-[2-(2-aminothiazol-4-yl)-2-(syn)-methoxyiminoacetamido]-3-methoxymethyl-3-cephem-4-carboxylate,

Pivaloyloxymethyl 7-[2-(2-aminothiazol-4-yl)-2-(syn)-ethoxyiminoacetamido]-3-methoxymethyl-3-cephem-4-carboxylate,

1-Ethoxycarbonyloxyethyl 7-[2-(2-aminothiazol-4-yl)-2-(syn)-methoxyiminoacetamido]-3-methoxymethyl-3-cephem-4-carboxylate and

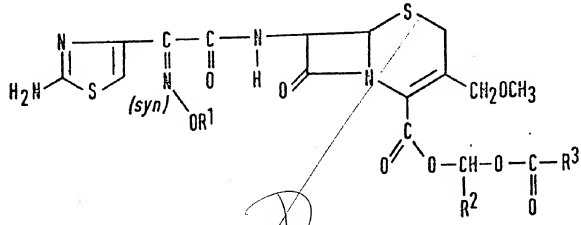
1-Ethoxycarbonyloxyethyl 7-[2-(2-aminothiazol-4-yl)-2-(syn)-ethoxyiminoacetamido]-3-methoxymethyl-3-cephem-4-carboxylate,

and pharmaceutically acceptable acid addition salts thereof.

6. The compounds claimed in Claim 1, in the form of the hydrochlorides.

7. The compounds claimed in Claim 5, in the form of the hydrochlorides.

8. A process for preparing compounds of formula (I):



(I)

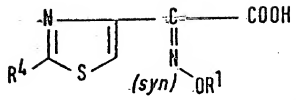
wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

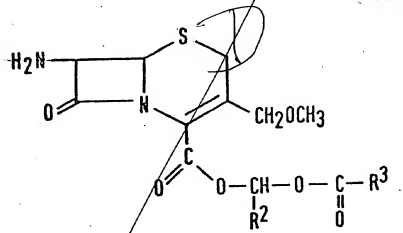
$R^3$ represents a group selected from ~~$C_1$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups,

which process comprises reacting a compound of formula (II):



(II)

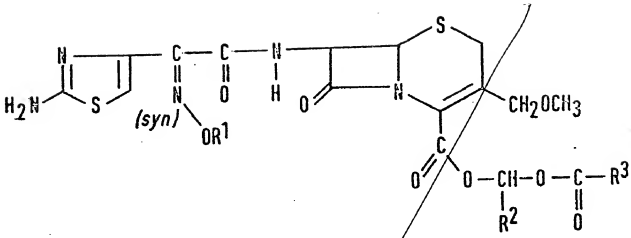
(wherein $R^4$ represents an amino group or a protected amino group and $R^1$ is as defined above) or a reactive derivative thereof with a compound of formula (III):



(III)

(wherein $R^2$ and $R^3$ are as defined above) and, where $R^4$ represents a protected amino group, deprotecting the group.

9. A process for preparing a compound of formula (I):



(I)

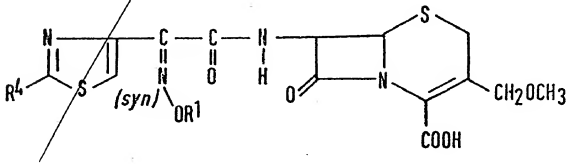
wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

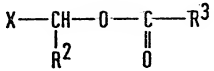
$R^3$ represents a group selected from ~~$C_1$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups,

which process comprises reacting a compound of formula (IV):



(IV)

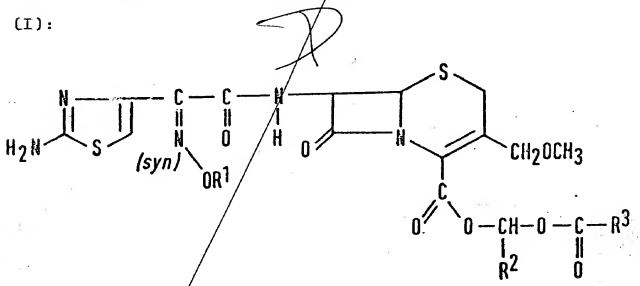
(wherein $R^4$ represents an amino group or a protected amino group and $R^1$ is as defined above) or a reactive derivative thereof with a compound of formula (V):



(V)

(wherein X represents a halogen atom and $R^2$ and $R^3$ are as defined above) and, where $R^4$ represents a protected amino group, deprotecting the group.

10. A process for preparing a compound of formula (I):



(I)

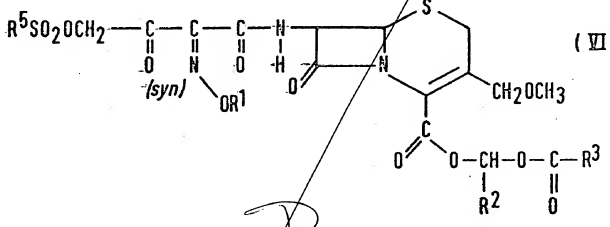
wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

$R^3$ represents a group selected from ~~$C_1$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups,

which process comprises reacting a compound of formula (VI):



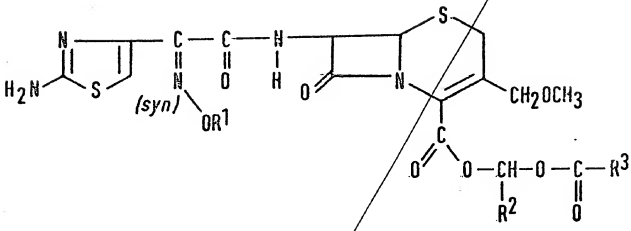

(VI)

(wherein $R^5$ represents a $C_1$-$C_6$ alkyl group or an aryl group and $R^1$, $R^2$ and $R^3$ are as defined above) with thiourea.

11. A process as claimed in Claim 10, wherein $R^5$ represents a $C_1$-$C_6$ alkyl group, a phenyl group or a phenyl group having at least one substituent selected from the group consisting of lower alkyl groups, lower alkoxy groups and halogen atoms.

12. A process as claimed in Claim 10, wherein $R^5$ represents a methyl group, an ethyl group, a phenyl group or a p-methylphenyl group.

13. A process for preparing a compound of formula (I):



(I)

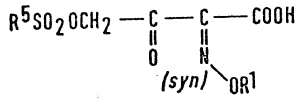
wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

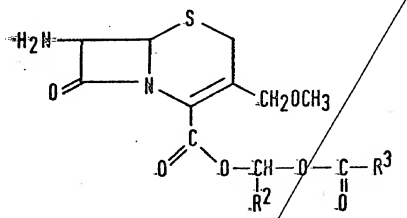
$R^3$ represents a group selected from ~~$C_1$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups,

which process comprises reacting a compound of formula (VII):



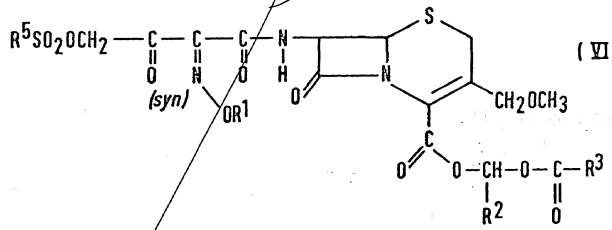
(VII)

(wherein $R^5$ represents a $C_1$-$C_6$ alkyl group or an aryl group and $R^1$ is as defined above) or a reactive derivative thereof with a compound of formula (III):



(III)

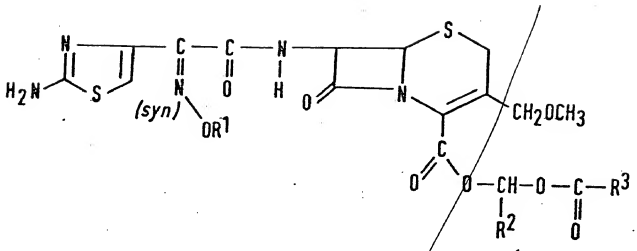
(wherein $R^2$ and $R^3$ are as defined above) to give a compound of formula (VI):



(VI)

(wherein $R^1$, $R^2$, $R^3$ and $R^5$ are as defined above) and reacting said compound of formula (VI) with thiourea.

14. A process for preparing a compound of formula (I):



(I)

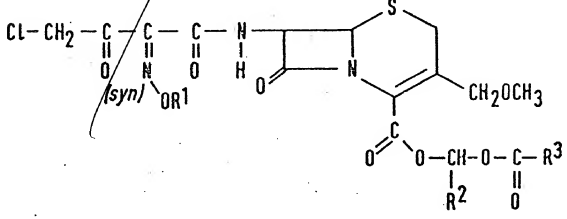
wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

$R^3$ represents a group selected from ~~$C_1$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups,

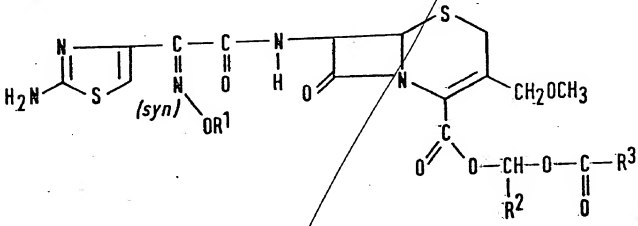
which process comprises reacting a compound of formula (VIII):



(VIII)

(wherein $R^1$, $R^2$ and $R^3$ are as defined above) with thiourea.

15. A process for preparing a compound of formula (I):



(I)

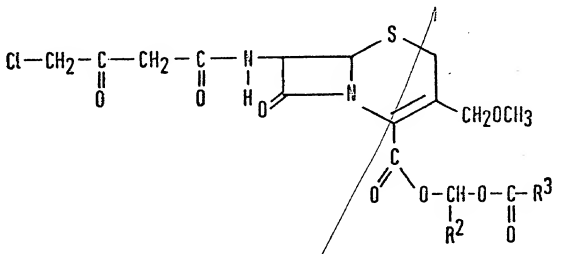
wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

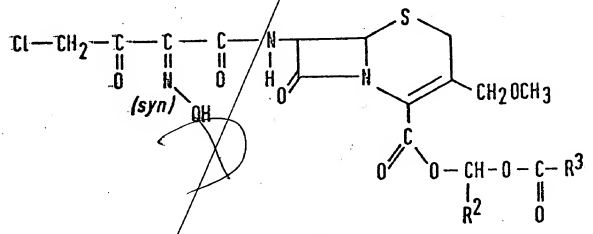
$R^3$ represents a group selected from ~~$C_1$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups,

which process comprises nitrosoating a compound of formula (IX):



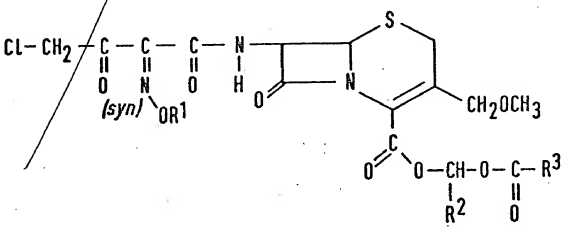
(IX)

(wherein $R^2$ and $R^3$ are as defined above) to give a compound of formula (X):



(X)

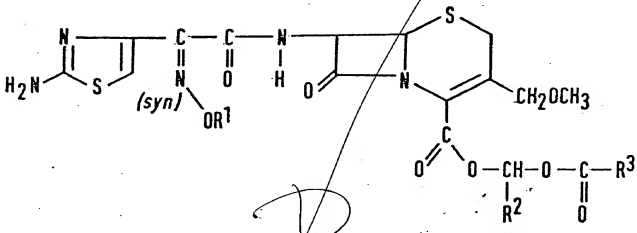
(wherein $R^2$ and $R^3$ are as defined above), alkylating said compound of formula (X) to give a compound of formula (VIII):



(VIII)

(wherein $R^1$, $R^2$ and $R^3$ are as defined above) and reacting said compound of formula (VIII) with thiourea.

16. A process for preparing a compound of formula (I):



(I)

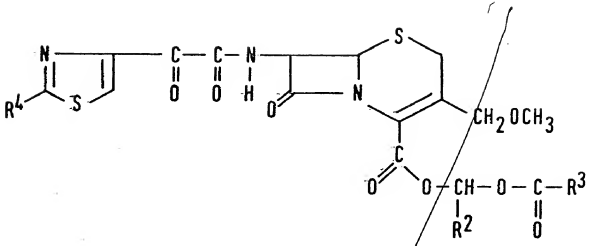
wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

$R^3$ represents a group selected from $C_1$-$C_5$ alkyl and $C_1$-$C_5$ alkoxy groups,

which process comprises reacting a compound of formula (XI):



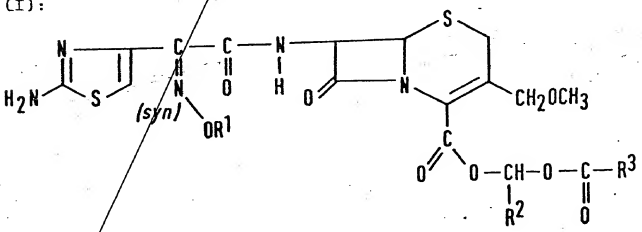
(XI)

(wherein $R^4$ represents an amino group or a protected amino group) with a compound of formula (XII):

(XII)

(wherein $R^1$ is as defined above) and, where $R^4$ represents a protected amino group, deprotecting the group.

17. A process for preparing a compound of formula (I):



(I)

wherein:

$R^1$ represents a lower alkyl group selected

from methyl groups and ethyl groups;

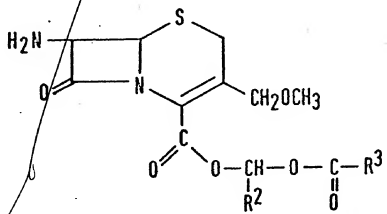
$R^2$ represents a hydrogen atom or a methyl group; and

$R^3$ represents a group selected from ~~$C_1$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups,

which process comprises reacting a compound of formula (XIII):

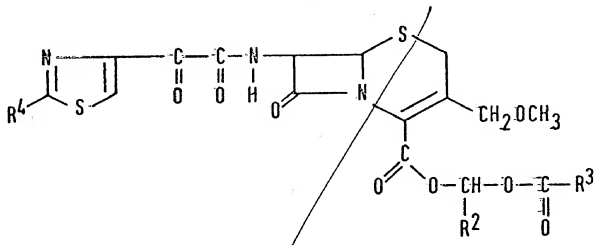
(XIII)

(wherein $R^4$ represents an amino group or a protected amino group) or a reactive derivative thereof with a compound of formula (III):



(III)

(wherein $R^2$ and $R^3$ are as defined above) to give a compound of formula (XI):



(XI)

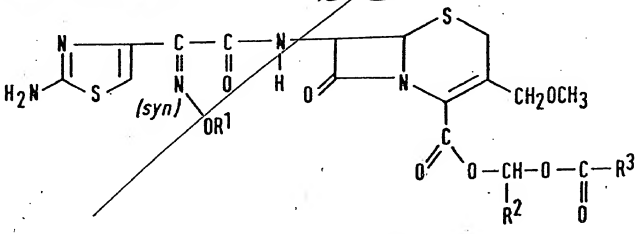
(wherein $R^2$, $R^3$ and $R^4$ are as defined above), reacting said compound of formula (XI) with a compound of formula (XII):



(XII)

(wherein $R^1$ is as defined above) and, where $R^4$ represents a protected amino group, deprotecting the group.

18. ~~In a~~ pharmaceutical composition for oral administration comprising an effective amount of an antibiotic in admixture with a pharmaceutically acceptable carrier or diluent, ~~the improvement which comprises employing as~~ comprising said antibiotic a compound of formula (I):



(I)

wherein:

$R^1$ represents a lower alkyl group selected from methyl groups and ethyl groups;

$R^2$ represents a hydrogen atom or a methyl group; and

$R^3$ represents a group selected from ~~$C_4$-$C_5$ alkyl and~~ $C_1$-$C_5$ alkoxy groups,

or a pharmaceutically acceptable acid addition salt thereof.